CALIFORNIA REGIONAL WATER QUALITY CONTROL REGIONAL BOARD CENTRAL VALLEY REGION

ORDER NO. R5-2005-XXX

NPDES NO. CA0082708
WASTE DISCHARGE REQUIREMENTS
FOR
ROCKWELL INTERNATIONAL CORPORATION
AND
PORTERVILLE UNIFIED SCHOOL DISTRICT
GROUNDWATER CLEANUP SYSTEM
TULARE COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

- 1. Rockwell International Corporation, a Delaware corporation, and the Porterville Unified School District (School District) (hereafter jointly referred to as Discharger) submitted a Report of Waste Discharge (RWD) on 6 December 2000 to discharge treated groundwater under the National Pollutant Discharge Elimination System (NPDES) from a groundwater cleanup system (GWCS).
- 2. Waste Discharge Requirements (WDRs) Order No. 96-106 (NPDES permit No. CA0082708) was adopted on 3 May 1996 for discharge of treated groundwater from the GWCS to the Pioneer Ditch. An administrative continuance extended Order No. 96-106 beyond the expiration date of 1 May 2001.
- 3. The subject property is at 914 West Pioneer Avenue, two miles northeast of the City of Porterville, within Section 22, T22S, R27E, MDB&M, as shown on Attachment A, a part of this Order.
- 4. In 1956, Rockwell International Corporation, known as Rockwell Manufacturing Company at the time, leased the property and began manufacturing water and gas meters. In 1971 the Rockwell International Corporation purchased the property. During 1971 through 1982, INCOM used the property for manufacturing marine cable. Mr. Albert Levinson, defined by Order No. 96-106 as a Discharger, purchased the site in 1983. In 2000, the School District purchased the property from the Levinson Estate. The School District currently leases the property to various entities that use it exclusively for warehousing needs. Rockwell Manufacturing Company and Rockwell International Corporation both contributed to the groundwater pollution and are conducting the cleanup.
- 5. In May 1991, the Discharger installed a GWCS consisting of an extraction well (REX-1), a scale inhibitor system, an air-blower and packed tower aeration air-stripping tower (PTA), and dual-vessel vapor phase granular activated carbon (GAC) adsorbers. In June 1998, the Discharger removed the GAC adsorbers because the San Joaquin Valley Air Pollution Control District allowed for the direct discharge of the air-stripper vapor without GAC polish. In 2001, the Discharger added an additional extraction well (REX-2). In 2002, the Discharger replaced the PTA with a low profile tray design air-stripper (model No. STAT 180). The low-profile tray air stripper uses counter-current flow to remove dissolved volatile organic compounds (VOCs) from groundwater as it is sprayed over and

trickles through a five-tray system. A scale inhibitor prevents formation of inorganic deposits in the air-stripper. The scale inhibitor that is currently used is a polyacrylate additive. VOCs removed from groundwater are converted into a vapor phase and discharged to the atmosphere.

6. Treated groundwater is collected in a sump at the base of the GWCS low-profile tray air stripper and pumped to the Pioneer Ditch, as shown in Attachment A. The discharge is identified below by a serial number:

<u>001</u> - The Discharge point is about 220 feet east of the northeastern corner of the property. The outfall is in Section 14, T21S, R27E, MDB&M, as shown on Attachment A (Latitude 36° 5' 41" North, Longitude 119° 2' 23" East).

7. According to the RWD, quarterly monitoring submitted by the Discharger, United States Army Corps of Engineers, and data from other Regional Board sources, the following conditions are typical for Lake Success where flows are diverted to the Pioneer Ditch:

<u>Constituent</u>	<u>Lake Success</u>	<u>Units</u>
Temperature	60.0	${}^{\mathrm{o}}\mathrm{F}$
рН	7.5	pH Units
Conductivity @ 25°C (EC)	70.2^{1}	μmhos/cm
Total Dissolved Solids	39	mg/L
Dissolved Oxygen	14.3	mg/L

Calculated value based on the empirical assumption that EC $\approx 1.8 * TDS$

8. According to the RWD and quarterly monitoring data submitted by the Discharger for the period May 1994 through January 2004, the following maximum concentrations of constituents in groundwater pumped to the GWCS were reported:

Constituent	Groundwater	<u>Units</u>
Temperature	23.8	$^{\mathrm{o}}\mathrm{C}$
pН	8.3	pH Units
EC	982	μmhos/cm
Total Dissolved Solids	540.1 ¹	mg/L
Nitrate/Nitrite-N	13	mg/L
Sulfate	28	mg/L
Barium	240	μg/L
Magnesium	38	mg/L
Zinc	67	μg/L
Chloroform	0.5	μg/L

15.8	μg/L
27	μg/L
140	μg/L
10.1	μg/L
4.4	μg/L
0.16	μg/L
8.3	μg/L
1.8	μg/L
1.2	μ g/L
	27 140 10.1 4.4 0.16 8.3 1.8

Calculated value based on the empirical assumption that TDS $\approx 0.55 * EC$.

9. The RWD and quarterly monitoring data for the period May 1994 through January 2004 submitted by the Discharger describes the maximum concentrations in the discharge as follows:

Average Flow: 56 gallons per minute (gpm)

Maximum Flow: 100 gpm

		RWD	MRP
		Maximum	Maximum
		Effluent	Effluent
		Concentration	Concentration
Constituent	<u>Units</u>	Reported	Reported
Biochemical Oxygen Demand ¹	mg/L	< 5.0	NS^2
Chemical Oxygen Demand ¹	mg/L	<10.0	NS^2
Total Organic Carbon ¹	mg/L	0.75	NS^2
Total Suspended Solids ¹	mg/L	< 5.0	NS^2
Ammonia ¹	mg/L	0.25	NS^2
Temperature (winter)	$^{\circ}\mathrm{C}$	19	17.2
Temperature (summer)	$^{\circ}\mathrm{C}$	24	27.5
pH	Std units	7.6 - 8.5	6.7-8.7
EC	μmhos/cm	NS^2	985
Nitrate/Nitrite-N ¹	mg/L	13	NS^2
Sulfate ¹	mg/L	28	NS^2
Barium ¹	μg/L	240	NS^2
Magnesium ¹	mg/L	38	NS^2
Zinc ¹	μg/L	67	NS^2
Chloroform ⁵	μg/L	< 0.5	ND^3
1,1-DCA ⁵	μg/L	< 0.5	5.1
	. 0		

		RWD	MRP
		Maximum	Maximum
		Effluent	Effluent
		Concentration	Concentration
Constituent	<u>Units</u>	<u>Reported</u>	Reported
1,2-DCA ⁵	μg/L	< 0.5	ND^2
1,1-DCE ⁵	μg/L	< 6.0	42
PCE^5	μg/L	< 5.0	2.6
1,1,1-TCA ⁵	μg/L	< 200	ND^2
1,1,2-TCA ⁵	μg/L	< 5.0	ND^2
TCE^5	μg/L	< 5.0	2.1
Bis(2-ethylhexyl) phthalate ⁵	μg/L	BA^4	ND^2
Carbon tetrachloride ⁵	μg/L	BA^4	ND^2
Methylene Chloride ⁵	μg/L	BA^4	1
Trans-1,2-DCE ⁵	μg/L	BA^4	ND^2
Cis-1,2-DCE ⁵	μg/L	BA^4	ND^2
Trichlorofluoromethane ⁵	μg/L	BA^4	ND^2

¹Based on one sampling event

- 10. Influent and effluent monitoring data submitted by the Discharger for the period 1998 to 2004 as required by the previous Order 96-106 are summarized in Tables 1 and 2 of the Information Sheet, a part of this Order.
- 11. Pioneer Ditch is a 24-inch diameter, subterranean, pressurized pipeline used to convey irrigation and recharge waters from Success Dam, east of Porterville, to agricultural lands along its eleven-mile length. The pipeline terminates approximately two miles north of the Porterville Unified School District. About one-third of a mile from its terminus, surplus water flows from Pioneer Ditch into an unlined cross connection, approximately one mile long, which connects with Canal No. 4, operated by the Lower Tule River Irrigation District. The discharge to Pioneer Ditch is currently distributed by the Lower Tule River Irrigation District for irrigation.
- 12. Canal No. 4 of the Lower Tule River Irrigation District conveys irrigation waters between Porterville and Corcoran. As part of this conveyance, the water flows through a segment of the North Fork of the Tule River, which is approximately eight miles in length. This segment begins approximately 11.5 miles west of Pioneer Ditch in the center of the SE 1/4 of Section 2, R25E,

² NS=Not Sampled

³ ND=Nondetect

⁴ BA=Believed Absent

⁵ Effluent limitation established in previous Order 96-106 for this constituent

T21S, MDB&M, and ends in the northern part of Section 22, R24E, T21S, MDB&M. It is likely that treated groundwater is discharged into the North Fork of the Tule River, a water of the United States.

- 13. During normal conditions, flow in the Pioneer Ditch is from Success Dam "downstream" towards the School District property. However, in order to supply agricultural water to farms "upstream," occasionally the Lower Tule River Irrigation District may adjust the pressure of the Pioneer Ditch, to reverse the direction of flow. During periods of low demand for irrigation water, flow in the Pioneer Ditch may be dominated by treated groundwater from Discharge No. 001. Occasionally, water from the Pioneer Ditch may be subject to unauthorized noncontact water recreational use within the boundaries of the Lower Tule River Irrigation District during periods of reverse flow in the Pioneer Ditch.
- 14. Two aquifer zones exist in the upper 160 feet of alluvial sediments. The upper aquifer originates about 50 feet below ground surface (bgs) and extends to about 100 feet bgs. A lower aquifer occurs below a depth of about 130 feet and ranges in thickness from about five to thirty feet in the vicinity of the property. The two aquifers are separated by a laterally extensive aquitard comprised of stiff cohesive clay and sandy clay. The plume of VOCs is within the upper aquifer and roughly 30 feet thick, 550 feet wide, and 900 feet long.
- 15. The upper aquifer contains moderately permeable sand lenses interspersed with lower permeability clayey materials. It is comprised of sand, sandy gravel, silty clay, clayey sand, clay, and sandy clay. The Discharger described the upper aquifer by segregating it into shallow and basal zones. The shallow zone extends from the water table to a depth of about 80 feet bgs. Sediments encountered in the shallow zone range from clayey sand to sandy clay and occur in laterally discontinuous lenses. The basal zone extends from the bottom of the shallow zone, at a depth of approximately 80 feet, to the top of the upper aquitard, at about 100 feet bgs.
- 16. Groundwater moves northeasterly with a hydraulic gradient ranging from about 0.002 to 0.07. Background groundwater quality is good. Groundwater samples collected from monitoring wells at the City of Porterville wastewater treatment facility show that in 1995 groundwater EC ranged from about 300 to 500 µmhos/cm.
- 17. Investigation of the upper aquifer in the vicinity and downgradient of the property defined the lateral extent of the pollution. In 1991, two private wells outside of the property boundaries were identified as potential conduits to the lower aquifer and have since been properly abandoned.
- 18. The extraction wells are constructed to a depth of 100 feet bgs. REX-1, in the northeast corner of the property, is perforated the entire saturated thickness of the upper aquifer (about 30 feet). REX-2, in

the center of the property near the northeast corner of the Plant Building, is also perforated the entire saturated thickness of the upper aquifer (about 40 feet). The Discharger operates the GWCS at a continuous extraction rate of 75 to 125 gallons per minute (gpm). The GWCS is designed for a continuous extraction rate up to 200 gpm.

- 19. As the Discharger conducts required groundwater monitoring, it typically generates less than 1,000 gallons of purged well water each quarter. The concentration of VOCs in the purge water may exceed the limits prescribed by Effluent Limitation B.2. Purge water from monitoring well sampling is treated with a portable GAC adsorber and disposed to land near the well and/or transported to the GWCS for subsequent treatment and disposal.
- 20. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives (WQOs), and contains implementation plans and policies for protecting waters of the Basin. The Basin Plan includes plans and policies of the State Water Resources Control Board (SWRCB) incorporated by reference, including SWRCB Resolution No. 68-16 "Statement of Policy With Respect to Maintaining High Quality Waters in California" (hereafter Resolution 68-16 or the "Antidegradation" Policy). Pursuant to the California Water Code (CWC), §13263(a), waste discharge requirements must implement the Basin Plan.
- 21. The subject property, GWCS, and the discharge point are within the Tule Delta Hydrologic Area (No. 558.20), as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986, and within the South Valley Floor Hydrological Unit, Tule Delta Hydrologic Area (No. 558.20) and the Tule Groundwater Basin (Detailed Analysis Unit No. 243).
- 22. The Basin Plan designates the following beneficial uses for the Tule River:
 - municipal and domestic supply (MUN);
 - industrial service (IND);
 - industrial process and process supply (PRO);
 - agricultural supply (AGR);
 - water contact recreation (REC-1);
 - non-contact water recreation (REC-2);
 - groundwater recharge (GWR);
 - warm freshwater habitat (WARM);
 - wildlife habitat (WILD)

Discharges from the GWCS to Pioneer Ditch and Canal No. 4 must be protective of the designated beneficial uses of the Tule River. For the purposes of this permit, the beneficial uses of the Tule River are considered applicable to Pioneer Ditch and Canal No. 4.

- 23. The Basin Plan designates the following beneficial uses of groundwater in the Tule Groundwater Basin: MUN, IND, PRO, and AGR and wildlife habitat (WILD), except where lesser beneficial uses are specifically designated in the Basin Plan.
- 24. The Basin Plan contains a narrative water quality objective for toxicity which states;

"Ground waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with the designated beneficial use(s). The Regional Board will also consider . . . numerical criteria and guidelines for toxic substances developed by the State Water Board, the California Office of Environmental Health Hazard Assessment, . . . and other appropriate organizations to evaluate compliance with this objective."

- 25. USEPA adopted the National Toxics Rule (NTR) on 5 February 1993 and the California Toxics Rule (CTR) on 18 May 2000. When combined with the beneficial use designations in the Basin Plan (Finding No.22) these rules contain water quality standards applicable to this discharge. The State Water Resources Control Board, on 26 April 2000 adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (hereafter referred to as the Implementation Policy) that contains requirements for implementation of the NTR and the CTR.
- 26. In accordance with the Implementation Policy, on 8 May 2001 and 23 October 2001 the Discharger reported the analytical results of the discharge and the receiving water for 126 priority pollutants, pH, hardness, and flow for low and high flow conditions, respectively. The Discharger also submitted analytical results of the discharge for each of the 17 TCDD congeners listed in Table 4 of the Implementation Policy.
- 27. The Implementation Policy requires the Regional Board to use all available, valid, relevant, representative information to determine whether a discharge may: (1) cause, (2) have a reasonable potential to cause, or (3) contribute to an excursion above any applicable priority pollutant criterion or objective.

- 28. In order to implement the applicable water quality objectives the most stringent numerical criteria available should be used to determine water quality based effluent limits (WQBELs) for each of the four pollutants. The criteria used for each pollutant are summarized Table 3 of the Information Sheet, a part of this Order.
- 29. Analyses of the discharge, as shown in Tables 1 and 2 of the Information Sheet, indicate 1,1-DCE, 1,1-DCA, 1,2-DCA, PCE and TCE are present in groundwater (i.e. influent to the GWCS) at concentrations that exceed the criteria presented in Table 3 of Information Sheet. Although the Discharger's GWCS has performed reliably, similar systems have experienced failures or operational errors that have resulted in pass through of untreated or partially treated effluent resulting in exceedances of permit limits. A failure of the GWCS or operational errors could result in a similar discharge of partially treated or untreated effluent exceeding applicable water quality criteria. Thus, each of these constituents has a reasonable potential to cause or contribute to an excursion above each respective applicable priority pollutant criterion or objective. Water quality-based effluent limitations developed for each of these pollutants in accordance with the Implementation Policy are shown in Table 4 of the Information Sheet.
- 30. The SIP data provided by the Discharger as described in Finding 26, indicate maximum concentrations of arsenic, chromium III, chromium VI, mercury, selenium and zinc in the discharge that do not exceed criteria contained in the CTR. However, given the limited data the Regional Board cannot determine the reasonable potential for these constituents to cause or contribute to an exceedance of all applicable water quality standards, including California MCLs. This Order requires the Discharger to monitor for these constituents and provides a reopener to allow the Regional Board to include effluent limitations if necessary.
- 31. Chapter 4 of the Basin Plan contains a policy for application of water quality objectives that specifies a method for evaluating the cumulative cancer risk from multiple chemicals found together in water. As of 28 June 2002, the following constituents described by Findings No. 8 and 9 are considered to be carcinogens as defined by The Safe Drinking Water & Toxic Enforcement Act of 1986:

1,1-DCE	TCE	Chloroform
1,2-DCA	PCE	1,1,2-TCA
1,1-DCE	Trichlorofluoromethane	

According to the Basin Plan, for carcinogenic constituents, the additive toxicity of the sum of the constituents is determined by dividing the concentration of each carcinogen in the discharge by its toxicological limit. The Basin Plan assumes an additive toxicity problem does not exist if the

summation of the ratios is less than 1.0. If the summation of the ratios is equal to or greater than 1.0, the combination of constituents is assumed to present an unacceptable level of toxicologic risk. The Basin Plan describes additive toxicity by the following formula:

$$\sum_{i=1}^{n} \frac{[\text{Concentration of Toxic Substance}]i}{[\text{Toxicological Limit for Substance in Water}]i} < 1.0$$

- 32. The Implementation Policy defines Minimum Level (ML) as the concentration at which the entire analytical system must give recognizable signal and calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all method specified sample weights, volumes, and processing steps have been followed.
- 33. The Implementation Policy defines Method Detection Limit (MDL) as the concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR 136, Appendix B, revised as of 14 May 1999.
- 34. The Implementation Policy requires the Discharger to report with each sample result the corresponding applicable ML and the laboratory's current MDL.
- 35. According to the Implementation Policy, if no ML value is below the effluent limitation, the applicable ML value shall be the lowest ML value listed in Appendix 4 of the Implementation Policy. VOC concentrations below the MLs are generally considered unquantifiable. Therefore, application of WQBELs (daily maximum) for these constituents requires effluent to be less than the MLs for these constituents.
- 36. The Implementation Policy Section 1.4 states, in part, "...calculated water quality based effluent limitations shall be compared to the technology-based effluent limitations for the pollutant, and the most protective of the two types of limitations shall be included in the permit." 40 CFR 122.44 requires the same comparison and the application of the more stringent limitations.
- 37. Clean Water Act section 301(b)(1) requires NPDES permits to include effluent limitations that achieve technology-based standards and any more stringent limitations necessary to meet water quality standards. Water quality standards include the Basin Plan's beneficial uses and narrative and numeric water quality objectives, State Board adopted standards and federal standards including NTR and CTR. These standards include the Basin Plan's toxicity objective and Resolution 68-16. Under the Clean Water Act, the applicable technology-based standard is "best available technology economically achievable/best conventional pollutant control technology" or BAT/BCT. Because

there are no promulgated effluent limitations for VOCs in groundwater extracted for cleanup, technology-based effluent limitations are established based upon consideration of the Regional Board staff's best professional judgment (BPJ). This Regional Board has a long history of regulating cleanup of VOCs in groundwater and has consistently imposed effluent limits at less than MLs for VOCs in groundwater. With respect to the specific discharges permitted herein, and particularly the air stripper, the following have been considered:

- Appropriate technology for category or class of discharges
- Unique factors relating to the applicant
- Age of equipment
- Processes employed
- Engineering aspects of various control techniques
- Non-water quality environmental impacts, including energy requirements
- Cost of achieving proposed effluent reduction
- Influent and effluent data

Air stripping and GAC systems are appropriate technologies for complete VOC removal from extracted groundwater, and air stripping is a system currently in place. Self-monitoring data provided by the Discharger indicates that its system can consistently meet proposed effluent limits, which supports a conclusion that the proposed limits reflect BAT. Additionally, the Discharger must properly operate and maintain its treatment systems. As the Discharger is already meeting the effluent limitations with the technology the Discharger employs, continued proper operation and maintenance will achieve these effluent limits and not impose additional costs on the Discharger.

- 38. In addition, Clean Water Act section 301 requires implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state law. Applicable state water quality standards include Resolution 68-18.
- 39. Resolution No. 68-18 requires implementation of Best Practicable Treatment and Control (BPTC) to ensure that the highest water quality is maintained consistent with the maximum benefit to the people of the State. BPTC is equivalent to BAT and for VOCs subject to this Order requires meeting effluent limits set at less than MLs. BPTC for groundwater cleanup of VOCs provides that the pollutants should be discharged at concentrations no higher than quantifiable levels for each pollutant. Several dischargers in the Central Valley region, including Rockwell International Company, have implemented BPTC groundwater treatment systems and have been able to treat VOCs in the wastewater to concentrations below the MLs. The MLs for VOC that are constituents of concern as they were reported by the Discharger in detectable concentrations are listed below:

Constituent	<u>Units</u>	\underline{ML}
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1,1-DCE	μg/L	0.5
1,1-DCA	μg/L	0.5
1,2-DCA	μg/L	0.5
TCE	μg/L	0.5
PCE	μg/L	0.5
1,1,1-TCA	μg/L	0.5
1,1,2-TCA	μg/L	0.5
Methylene Chloride	μg/L	0.5
Chloroform	μg/L	0.5
Trichlorofluoromethane	μg/L	0.5

- 40. Previous Order 96-106 established technology based effluent limits for priority pollutants chloroform, methylene chloride, 1,1,1-TCA and 1,1,2-TCA and trichlorofluoromethane, which is not a priority pollutant. These constituents have been detected in groundwater and in the discharge in concentrations at or above the effluent limitations or MLs but not in concentrations that have reasonable potential to cause or contribute to an exceedance of water quality standards. Because these constituents were in detectable concentrations, effluent limitations are established in this Order.
- 41. The most stringent effluent limit for VOC constituents reported in detectable concentrations are:

				TBEL	
		WQBEL	<u>Limit</u> ¹	<u>Limit²</u>	Most
			Monthly		Stringent
Constituent	<u>Units</u>	Daily Max	<u>Average</u>	<u>Maximum</u>	Effluent Limit
1,1-DCE	μg/L	0.11	0.057	< 0.5	0.057
1,1-DCA	μg/L	10.1	5	< 0.5	< 0.5
1,2-DCA	μg/L	0.76	0.38	< 0.5	0.38
1,1,1-TCA	μg/L	402	200	< 0.5	< 0.5
1,1,2-TCA	μg/L	1.21	0.6	< 0.5	< 0.5
PCE	μg/L	1.61	0.8	< 0.5	< 0.5
TCE	μg/L	5.43	2.7	< 0.5	< 0.5
Methylene Chloride	μg/L	5.03	2.5	< 0.5	< 0.5
Trichlorofluoromethane	μg/L	301.5	150	< 0.5	< 0.5
Chloroform	μg/L	2.21	1.1	< 0.5	< 0.5

Water Quality Based Effluent Limit.

Technology-based Effluent Limit. These limits are applied as the daily maximum effluent limits for all of the VOC constituents.

- 42. Over the past several years, the air-stripper has consistently removed the pollutants to the proposed effluent limits. The proposed effluent limitations consider the BPJ factors in Finding 37, above, historical performance of the on-site BAT/BPTC systems, receiving water conditions, USEPA method detection limits, and are less than or equal to California Primary Maximum Contaminant Levels, California Toxics Rule and National Toxics Rule criteria, and limits which implement applicable water quality objectives.
- 43. Application of BAT/BCT to achieve the effluent limits will also result in compliance with WQBELs and that is consistent with the requirement of Resolution 68-16 that discharges meet BPTC. A possible exception is the monthly average WQBEL limits for 1,1-DCE and 1,2-DCA. However, given that the limit for these constituents are below the applicable ML, it is appropriate to assume that a result of <0.5 μg/L also represents compliance with the WQBEL and BPTC. The permitted discharge is consistent with the anti-degradation provisions of 40 CFR 131.12 and Resolution No. 68-16. BPTC for cleanup of groundwater polluted by volatile organic constituents is removal of VOCs to a level at or below corresponding analytical quantitation limits. Some resulting degradation of the receiving water could occur if VOCs were present at concentrations below the quantitation limit, but such degradation would not be quantifiable. The Discharger has not submitted an analysis to the Regional Board demonstrating that degradation resulting from discharges of VOCs at concentrations in excess of quantifiable levels would be consistent with the maximum benefit of the people of the state and Resolution No. 68-18. Due to the relatively low EC and TDS values of the receiving water, during periods of limited or no dilution, some degradation of the receiving water may occur from these pollutants, however, the discharge will not cause an exceedance of water quality objectives or cause a significant impact on the beneficial uses of groundwater and surface water. The continued remediation of polluted groundwater, and the use of the treated groundwater for irrigation via the Pioneer Ditch, both benefit the people of the state.
- 44. Previous Order 96-106 established effluent limits for priority pollutants bis(2-ethylhexyl) phthalate, trans 1,2 Dichloroethylene and 1,2 Dichloropropane. These constituents have not been reported in detectable concentrations in data reported by the Discharger for groundwater and the discharge for the period May 1994 through January 2004. Since the issuance of Order 96-106, the CTR was implemented. The human health CTR criterion for the constituent bis(2-ethylhexyl) phthalate, trans 1,2 Dichloroethylene and 1,2 Dichloropropane are 1.8 μg/L, 700 μg/L and 0.52 μg/L, respectively. Monitoring between 1994 and 2004 indicate no detectable levels of any of these CTR constituents in the groundwater or discharge that exceed these criteria. The CTR provides new information on these constituents and the effects they have on human health. Based upon the CTR criteria for these constituents, there is no reasonable potential for the discharge to exceed the limitations contained in

previous Order 96-106, therefore effluent limitations for bis(2-ethylhexyl) phthalate, trans 1,2 Dichloroethylene and 1,2 Dichloropropane have been removed from this Order. This change is consistent with the anti-backsliding provisions of 40 CFR 122.44(1)12 and 122.62(a)(16).

- 45. Previous Order 96-106 established effluent limits for non-priority pollutants cis-1,2 Dichloroethylene and trichlorotrifluoroethane. These constituents have not been reported in detectable concentrations in data reported by the Discharger for groundwater and the discharge for the period May 1994 through January 2004. The California primary MCL for cis-1,2 Dichloroethylene and trichlorotrifluoroethane are 6 μg/L, and 1200 μg/L, respectively. Monitoring between 1994 and 2004 indicate no detectable levels of any of these constituents in the groundwater or discharge. These values are below the primary MCL. They also are well below the effluent limitations from the previous Order. The Regional Board is not including effluent limitation for cis-1,2 Dichloroethylene and trichlorotrifluoroethane in this Order. New information regarding the nondetected concentrations of these constituents based on more than five years monitoring justify removal of these effluent limitations. This change is consistent with the anti-backsliding provisions of 40 CFR 122.44(1)12 and 122.62(a)(16).
- 46. Order 96-106 established a TBEL for carbon tetrachloride, a priority pollutant, of $0.5 \mu g/L$. The applicable human health CTR criterion is below this at $0.25 \mu g/L$. Monitoring between 1994 and 2004 does not indicate carbon tetrachloride in the groundwater or effluent at detectable levels of $0.5 \mu g/L$. Given this, there is not enough information to include a WQBEL for this constituent at this time. However, as the limit in Order No. 96-106 was set above the CTR criteria, there is no data characterizing the groundwater or effluent between the criteria and detection limits employed by the Discharger, and as carbon tetrachloride is a VOC subject to removal by air-stripping, it is appropriate to include a TBEL of $<0.5 \mu g/L$ for this constituent in this Order.
- 47. The Discharger provided influent and effluent data in the RWD for non-priority pollutants ammonia, nitrate, sulfate, barium and magnesium based on one monitoring event. Given the limited data the Regional Board cannot determine the reasonable potential for these constituents to cause or contribute to an exceedance of applicable water quality standards. This Order requires the Discharger to monitor for these constituents and provides a reopener to allow the Regional Board to include effluent limitations later if evaluation of monitoring results proves it necessary.
- 48. Based on quarterly monitoring data provided by the Discharger, effluent limits were exceeded frequently during startup of the treatment system after it had been out of service for repair or other purposes. This Order establishes a more stringent monitoring program for startup of the system after shutdown. In addition this Order requires the system to be shut down if exceedances to effluent limitations occur.

- 49. Page IV-9, Discharges to Navigable Waters, of the Basin Plan requires at a minimum, dischargers to surface waters, including streams, to comply with the following effluent limits:
 - The maximum EC shall not exceed the EC of the source water plus 500 μmhos/cm or 1,000 μmhos/cm, whichever is more stringent, and
 - The chloride and boron concentrations shall not exceed 175 mg/L and 1.0 mg/L, respectively.

The Discharger under Order 96-106 has monitored EC. The maximum concentration reported was 985 µmhos/cm, and the average concentration was 740 µmhos/cm for the monitoring period January 1999 through September 2003. To comply with Section IV of the Basin Plan, this Order establishes a maximum EC effluent limitation of 1,000 µmhos/cm. The limitations for EC established in this Order are maximum limitations and are intended to preclude the addition of salt. The air stripping process itself does not add salts. Therefore, the effluent EC should be the same as the influent EC. This Order assigns EC limitations and monitoring to gather information, and may be re-opened to reconsider EC limitations should future monitoring indicate the need.

This Order also establishes effluent limits for chloride and boron in accordance with the Basin Plan, Section IV. The limitations for chloride and boron established in this Order are maximum limitations. The air stripping process does not add chloride or boron. Therefore the effluent chloride and boron concentrations should be the same as the influent chloride and boron concentrations. This Order assigns chloride and boron limitations and monitoring to gather information, and may be reopened to reconsider chloride and boron limitations should future monitoring indicate the need.

- 50. The RWD contains a single effluent result for nitrate-nitrogen that exceeds the State MCL of 10 mg/L for drinking water. The single result is not enough to justify an effluent limit, but it does indicate that groundwater and effluent must be monitored for nitrogen forms to determine whether the discharge threatens to cause an exceedence of the WQO for nitrate-nitrogen in the receiving waters. If nitrate or other nitrogen forms are identified as being present at concentrations that may cause an exceedence of WQOs, this Order may be reopened and appropriate effluent limits and receiving water limitations established.
- 51. Chapter 3, Table III-2 of the Basin Plan establishes maximum EC levels for water bodies within the Tulare Lake Basin. Table III-2 establishes a maximum EC value of 450 µmhos/cm during the irrigation season for releases to reaches below Lake Success, one reach of which, that includes Pioneer Ditch. The irrigation season is defined as late April through October of each year. This Order establishes a receiving water limitation for the irrigation season of 450 µmhos/cm to ensure the protection of water quality

- 52. If other constituents of concern are identified as being present or potentially being present in groundwater discharged under this Order, then this Order may be reopened and effluent limits and receiving water limitations may be established for those constituents.
- 53. This Regional Board action does not pre-empt or supersede the authority of local agencies to prohibit, restrict, or control the discharge of groundwater cleanup wastewater subject to their control. Discharges to local irrigation or storm water collection and conveyance facilities must obtain approval from the agency responsible for operation and maintenance of the facility.
- 54. Section 13267 of the California Water Code states, in part, "(a) A regional board, in establishing...waste discharge requirements... may investigate the quality of any waters of the state within its region" and "(b) (1) In conducting an investigation..., the regional board may require that any person who... discharges... waste...that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports." The attached Monitoring and Reporting Program is necessary to determine compliance with these waste discharge requirements. The Discharger is responsible for the discharges of waste subject to this Order.
- 55. CWC Section 13383 states: "(a) The state board or a regional board may establish monitoring, inspection, entry, reporting, and recordkeeping requirements, as authorized by Section 13377 or by subdivisions (b) and (c) of this section, for any person who discharges pollutants ... any person who owns or operates a publicly owned treatment works or other treatment works treating domestic sewage, or any person who uses or disposes of sewage sludge. (b) The state board or the regional boards may require any person subject to this section to establish and maintain monitoring equipment or methods, including, where appropriate, biological monitoring methods, sample effluent as prescribed, and provide other information as may be reasonably required. (c) The state board or a regional board may inspect the facilities of any person subject to this section pursuant to the procedure set forth in subdivision (c) of Section 13267."
- 56. The U.S. Environmental Protection Agency (USEPA) and this Regional Board have classified this discharge as a minor discharge.
- 57. Effluent limitations and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines, and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) and amendments thereto that are applicable to the discharge are contained herein.

- 58. Review of policy relative to Effluent Dominated Water Bodies (EDWs) is underway. A Basin Plan amendment or policy issuance regarding EDWs may affect future conditions of discharge.
- 59. The action to adopt an NPDES permit is exempt from the provisions of California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et seq.), in accordance with Section 13389 of the California Water Code.
- 60. The Discharger and interested agencies and persons were notified of intent to prescribe waste discharge requirements for this discharge and provided with an opportunity for a public hearing and an opportunity to submit written views and recommendations.
- 61. All the above and the supplemental data and information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing conditions of discharge.
- 62. In a public meeting, all comments pertaining to the discharge were heard and considered.
- 63. This Order shall serve as an NPDES permit pursuant to Section 402 of the Clean Water Act, and amendments thereto, and shall take effect upon the date of hearing, provided EPA has no objections.

IT IS HEREBY ORDERED that Waste Discharge Requirements Order No. 96-106 is rescinded, and that, pursuant to CWC Sections 13263, 13267, 13377, and 13383, Rockwell International Corporation and the Porterville Unified School District, their agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following when discharging from the above described groundwater cleanup system:

[Note: Other prohibitions, conditions, definitions, and some methods of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated 1 March 1991.]

A. Discharge Prohibitions

- 1. Discharge of material other than treated groundwater from the investigation and cleanup of VOCs as described in the Findings, or at locations or in a manner different from that described in Findings, is prohibited.
- 2. By-pass or overflow of untreated or partially treated waste is prohibited, except in circumstances described in Standard Provision A.13.

3. Discharge of waste classified as 'hazardous' as defined in Section 2521(a) of Title 23, CCR, Section 2510, et seq., or 'designated', as defined in Section 13173 of the California Water Code, is prohibited.

B. Effluent Limitations

- 1. The maximum daily discharge to the Pioneer Ditch (Discharge 001) shall not exceed 0.288 mgd (200 gpm).
- 2. The discharge from the GWCS shall not exceed the following:

Constituent	<u>Units</u>	<u>Monthly</u>	Daily Maximum
		<u>Average</u>	
Carbon Tetrachloride	μg/L		< 0.5
Chloroform	μg/L		< 0.5
Methylene Chloride	μg/L		< 0.5
1,1-DCA	μg/L		< 0.5
1,2-DCA	μg/L	0.38^{1}	< 0.5
1,1 DCE	μg/L	0.057^{1}	< 0.5
PCE	μg/L		< 0.5
1,1,1 TCA	μg/L		<1.0
1,1,2 TCA	μg/L		< 0.5
TCE	μg/L		< 0.5
Trichlorofluoromethane	μg/L		< 0.5
Other VOCs ²	μg/L		< 0.5
EC^3	μmhos/cm		1000
Chloride	mg/L		175
Boron	mg/L		1.0

If approved Minimum Level (ML) is greater than Monthly Average Limit, then compliance is met if concentration is below the ML.

3. The additive toxicity of the constituents in the discharge from the GWCS described by Finding No. 31 shall not equal or exceed 1.0. The calculation shall be based on the maximum limits and applicable MLs prescribed by Effluent Limitations B.2, and the formula described in Finding No. 31.

Other typical Volatile Organic Compounds listed in Appendix 4 of the Implementation Policy.

During the irrigation season, late April through October of each year the discharge cannot cause an exceedance of Receiving Water Limitation D.13 for EC.

- 4. All purge water shall be treated and disposed of by a method approved by the Executive Officer or shall be contained or treated until laboratory analytical results confirm that the concentration of all VOCs comply with the Effluent Limitations B.2.
- 5. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
 - a. Minimum for any one bioassay ----- 70%
 - b. Median for any three or more consecutive ----- 90% bioassays

C. Waste and Solids Disposal:

- 1. Wastes and other residual solids removed from liquid wastes or used to treat liquid wastes, except as approved by the Executive Officer, shall be recycled or disposed of in a manner that is consistent with Division 3, Title 27; Chapter 15, Division 3, Title 23; and Division 4.5, Title 22 of the CCR and approved by the Executive Officer.
- 2. Any proposed change in waste use or solids disposal practice from a previously approved practice shall be reported to the Executive Officer and EPA Regional Administrator at least **90 days** in advance of the change.

D. Receiving Water Limitations

Receiving Water Limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this permit. The discharge shall not cause the following in Pioneer Ditch:

- 1. Concentrations of dissolved oxygen to fall below 5.0 mg/L. The monthly median dissolved oxygen concentration shall not fall below 85 percent of saturation in the main water mass, and the 95th percentile concentration shall not fall below 75 percent of saturation.
- 2. Un-ionized ammonia to be present in amounts that adversely affect beneficial uses or that exceed 0.025 mg/L (as N).
- 3. Biostimulatory substances to be present in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

- 4. The fecal coliform concentration in any 30-day period to exceed a geometric mean of 200 MPN/100 ml or cause more than 10 percent of total samples to exceed 400 MPN/100 ml.
- 5. Oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
- 6. Aesthetically undesirable discoloration.
- 7. The turbidity to increase as follows:
 - a. More than 1 Nephelometric Turbidity Unit (NTU) where natural turbidity is between 0 and 5 NTUs
 - b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
 - c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.
 - d. More than 10 percent where natural turbidity is greater than 100 NTUs.
- 8. The normal ambient pH to fall below 6.5, exceed 8.3, or change by more than 0.3 standard units.
- 9. Floating material, including but not limited to solids, liquids, foams, and scum, in concentrations that create a nuisance or adversely affect beneficial uses.
- 10. The natural ambient temperature to increase more than 5°F, or to be altered to a degree that adversely affects beneficial uses.
- 11. Deposition of material that causes nuisance or adversely affects beneficial uses.
- 12. The EC during the irrigation season (late April through October) to exceed 450 μmhos/cm.
- 13. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in the California Code of Regulations, Title 22; that harm human, plant, animal, or aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

- 14. Toxic substances to be present in the water that produce detrimental physiologic responses in human, plant, animal, or aquatic life.
- 15. Pesticides to be present in concentrations that adversely affect beneficial uses or that cause increases in pesticide concentrations in bottom sediments or organic life that adversely affect beneficial uses.
- 16. Taste- or odor-producing substances in concentrations that cause nuisance, adversely affect beneficial uses, or impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to domestic or municipal water supplies.
- 17. Violation of any applicable water quality objective for receiving waters adopted by the Regional Board or the State Water Resources Control Board or the USEPA pursuant to the CWA and regulations adopted thereunder.

D. Groundwater Limitations

The discharge shall not cause the underlying groundwater to be degraded.

E. Provisions

- 1. This Order sets conditions for discharge to the Pioneer Ditch. This Order does not grant privilege to use the subject canal.
- 2. The Discharger shall comply with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)*, dated March 1991, which are part of this Order. This attachment and its individual paragraphs are referred to as *Standard Provisions(s)*.
- 3. The Discharger shall comply with Monitoring and Reporting Program (MRP) No. R5-2005-XXXX, which is a part of this Order, and any revisions thereto as ordered by the Executive Officer.

When requested by U.S. EPA, the Discharger shall complete and submit Discharge Monitoring Reports to the U.S. EPA. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program for Discharger Self Monitoring Reports.

- 4. By **24** August **2005**, the Discharger shall submit a technical report in a form of a work plan for the treatment of contaminated purge water prior to discharge for review and approval by the Executive Officer. The technical workplan shall conform to Provision E.13.
- 5. By **24 August 2005**, the Discharger shall submit an operation and maintenance plan (O&M Plan) for review and approval by the Executive Officer. The O&M Plan shall:
 - a. Instruct operating personnel on how to manage the day-to-day discharge operation to comply with the terms and conditions of this order.
 - b. Detail how frequently the air-stripper unit is serviced and also describe how valves and plumbing are clearly labeled to ensure proper operation of the GWCS by operating personnel.
 - c. Detail procedures to be followed before, during, and after system start-up and shutdown to prevent the discharge of untreated or partially treated groundwater.

The O&M Plan shall also include details for the following aspects of the proposed sampling and analyses processes for monitoring influent, effluent, and groundwater:

- d. A proposed list of analytes;
- e. An analytical method summary (must be USEPA approved methods capable of quantifying analytes to levels at or below those specified in Effluent Limitations and Receiving Water Limitations, above);
- f. Sample preparation, collection, preservation, handling, and storage procedures;
- g. Discussions of possible interferences and potential problems;
- h. Descriptions of sampling and analysis equipment/apparatus;
- i. Quality assurance and quality control measures;
- i. Well purging methods;
- k. Health and safety issues and precautions.

A copy of the O&M Plan shall be kept at the GWCS office for reference by operating personnel. Key operating personnel shall be familiar with its contents. The O&M Plan shall conform to Provision E.13.

6. If the system has a scheduled or unscheduled shutdown, samples shall be analyzed immediately upon startup and daily until continuous steady-state operation is achieved. The Discharger shall ensure there is sufficient time between sample collections to avoid sample clustering.

- 7. If single sample results appear to indicate violations of monthly average or daily maximum effluent limits and the Discharger does not collect additional samples for confirmation or calculation purposes, the single sample results will be considered violations of the requirements of this Order. The Discharger may sample more frequently than required by the attached MRP No. R5-2005-XXXXX to provide a more representative data base and possibly lower reported average constituent values to demonstrate compliance with effluent limitations.
- 8. The Discharger shall conduct the chronic toxicity testing specified in MRP No.______. If the testing indicates that the discharge causes, contributes to, or has the reasonable potential to cause or contribute to an in-stream excursion above the water quality objective for toxicity, the Discharger shall initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon implementation of the TIE, the Discharger shall submit a workplan to conduct a Toxicity Reduction Evaluation (TRE) and upon Executive Officer approval conduct the TRE. If necessary, this Order will be reopened and a chronic toxicity limitation included and/or a limitation for the specific toxicant identified in the TRE included. The results shall conform to Provision E.13. Additionally, if the State Water Resources Control Board adopts a chronic toxicity water quality objective, this Order may be reopened to include an effluent limitation based on that objective.
- 9. By **8 August 2005**, the Discharger shall submit proposed sampling locations for the upstream and downstream receiving water sampling points required by MRP No. R5-2005-XXXX subject to the approval of the Executive Officer.
- 10. This Board may modify or reopen this Order prior to its expiration date in any of the following circumstances:
 - a. If present or future investigations demonstrate that the discharge governed by this Order has a reasonable potential to cause or contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters;
 - b. New or revised water quality objectives (WQOs) come into effect for the receiving water. In such cases, effluent limitations in this permit will be modified as necessary to reflect updated WQOs. Adoption of effluent limitations contained in this Order is not intended to restrict in any way future modifications based on legally adopted WQOs or as otherwise permitted under federal regulations governing NPDES permit modifications;
 - c. If translator or other water quality studies provide a basis for determining that a permit condition(s) should be modified. The Discharger may request permit modification on this basis. The Discharger shall include in any such request an antidegradation and antibacksliding analysis.

- 11. Prior to making significant change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger shall obtain approval of or clearance from the State Water Resources Control Board (Division of Water Rights).
- 12. The Discharger shall employ best practicable treatment and control (BPTC) of the discharge, including proper operation and maintenance, to comply with this Order.
- 13. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. To demonstrate compliance with sections 415 and 3065 of Title 16, CCR, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
- 14. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded immediately to this office.
- 15. To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision D.6 and state that the new owner or operator assumes full responsibility for compliance with the Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.
- 16. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.
- 17. Personnel operating the GWCS shall keep a copy of this Order at the site for reference. Key

operating personnel shall be familiar with its contents.

> 18. This Order expires on 24 June 2010, and the Discharger must file a Report of Waste Discharge in accordance with Title 23, CCR, not later than 180 days in advance of such date to apply for renewal of waste discharge requirements if it wishes to continue the discharge to Pioneer Ditch.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 23/24 June 2004.

THOMAS R. PINKOS, Executive Office